

ABSTRACT OF THE DISCLOSURE

A flip^{chip} type of light-emitting semiconductor device using group III nitride compound comprising a thick positive electrode. The positive electrode, which is made of at least one of silver (Ag), rhodium (Rh), ruthenium (Ru), platinum (Pt) and palladium (Pd), and an alloy including at least one of these metals, is adjacent to a p-type semiconductor layer, and reflect light toward a sapphire substrate. Accordingly, a positive electrode having a high reflectivity and a low contact resistance can be obtained. A first thin-film metal layer, which is made of cobalt (Co) and nickel (Ni), or any combinations of including at least one of these metals, formed between the p-type semiconductor layer and the thick electrode, can improve an adhesion between a contact layer and the thick positive electrode. A thickness of the first thin-film metal electrode should be preferably in the range of 2 Å to 200 Å, more preferably 5 Å to 50 Å. A second thin-film metal layer made of gold (Au) can further improve the adhesion.

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